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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,661	12/20/2001	Duane S. Treybig	7560 ONES	1640

49459 7590 11/04/2005

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EXAMINER

METZMAIER, DANIEL S

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 11/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/034,661

Applicant(s)

TREYBIG ET AL.

Examiner

Daniel S. Metzmaier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June & 02 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 and 42-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 and 42-60 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claims 1-40 and 42-60 are pending.

Claim Objections

1. Claims 18 and 52 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 18 limits claim 17 to the N,N,N'-(trimethyl)-1,3-propanediamine since said species is the only species of claim 17, which has a tertiary amine group and claim 18 is dependent on claim 17. Claim 52 further second amine monomer reads on the addition of the amine monomer in step c) of claim 51 process. Claim 52 depends on claim 51 and therefore reads on the addition of the same monomer.

2. Claims 42 and 44 are objected to because of the following informalities: the species 42(d) and 44(c) should be checked as to the last two species in the listing, which appear to lack a " ' " (prime) on one of the N in the chemical names. See N,N,N-triethylethylenediamine, N,N-dimethyl-N-ethylethylenediamine, and N,N,N-trimethyl-1,3-propanediamine.

Appropriate clarification and/or correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

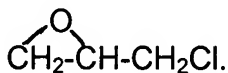
5. Claims 3, 7, 8, 16, 20, 21, 23, 29-40, 42, and 60 are rejected under 35

U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 is indefinite since it is unclear what are the terminal epoxy groups. It is unclear whether the terminal epoxy groups are on the amine capping monomer, the reaction product, or some unspecified monomer or reactant.

In claim 16, "the linear polymeric reaction product" lacks proper antecedent basis in claim 15. No linear polymer has been set forth.

In claims 7, 8, 20 and 21, the agent structure is indefinite. While the N-alkylating agent may be derived from "epihalohydrin", the N-alkylating agent does not contain an epihalohydrin-containing group, i.e.,



Attention is further directed to claim 42(e), 44(d), or 60(3). Please contrast with claims 13 and 38.

Claim 29 is unclear what the "subsequently reacted amine capping monomer is subsequently reacted. Claims 29-40 are included herewith since said claims are dependent on claim 29 and do not clarify said issue.

Claims 23 and 36 employ improper alternative groupings. The grouping lacks closed language and the species open language, i.e., containing, to define the species. It is unclear what are the metes and bounds of the grouping and the scope of the individual species. See MPEP 2173.05(h).

In 1)(c); "R3" is undefined. Claim 60 is therefore indefinite. The alternative groupings do not employ closed language, which renders the metes and bounds of the claimed groupings indefinite.

In claim 42, line 11; the chemical name "2,6-dimethylpiprazine" appears to be misspelled and should be "2,6-dimethylpiperazine".

Claim Interpretation

6. The claims 1-40, 42-48 and 60 are drafted in product-by-process format. See MPEP 2113. It is noted that claim 15 employs open language defining the agent or monomer, e.g., amine-containing monomer. The amine compounds are open to more than the two reactive amino hydrogens claimed.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3, 5-10, 15-16, 19-23, 51-53, and 60 are rejected under 35 U.S.C. 102(b) as being anticipated by Ott et al, US 5,324,404. Ott et al (columns 9-12, grinding resins A1-6) disclose polymer resin compositions employing DER 732 (polypropylene glycol diglycidyl ether from Dow Chemicals) reacted with 2,2'-aminoethoxyethanol ($\text{H}_2\text{NCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OH}$) and N,N-dimethylaminopropylamine ($(\text{CH}_3)_2\text{NCH}_2\text{CH}_2\text{NH}_2$).

Regarding claim 51, the N,N-dimethylaminopropylamine reads on the capping amine monomer and the alkylating agent is indistinct from the reaction products having complete reaction of the diglycidyl ethers or epihalohydrin capped diols since the product structures are indistinct and the halogen is a reaction by-product. Attention is further directed to claim 60(3).

Claim 60 is included in this rejection since 2,2'-aminoethoxyethanol reads on claim 60, 1)(b); when R1 is $(-\text{CH}_2-\text{CH}_2-\text{O}-)_n$, $n = 2$ and Z1 = H. DER 732 reads on components 2) and 3), which are indistinct in the final product when R8 is 2-hydroxy-3-chloropropyl. The terminal halogens would react and expected to form the same reaction products as the diglycidyl ethers. Said products reactive with the free amine nitrogens and forming a 2-hydroxypropyl linkage.

9. Claims 15-16, 19, 26, and 60 are rejected under 35 U.S.C. 102(b) as being anticipated by Starner, US 5,591,812. Starner (columns 3-4; examples and claims) disclose the reaction products of methylamine and polyglycidyl ethers. When the value of m (structure at column 3, lines 60) is greater than 1, the intermediate compound defined by $m = 1$ has two reactive aminohydrogens and a tertiary amine. The product resulting from said compounds $m > 1$ read on the product by process polymer compositions.

Starner (column 5, lines 10-22) disclose the use of alcohol as a solvent and the compounds are tested by reacting with an acid (column 8, lines 15-25). The products resulting from diglycidyl ethers read on alkylating agents as defined. Attention is

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directed to claim 60 wherein the N-alkylating agents would result in the same products as the diglycidyl ethers when R8 is 2-hydroxy-3-chloropropyl.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 6-10, 19-23, and 27-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ott et al, US 5,324,404. Ott et al (columns 9-12, grinding resins A1-6) disclose polymer resin compositions employing DER 732 (polypropylene glycol diglycidyl ether from Dow Chemicals) reacted with 2,2'-aminoethoxyethanol ($\text{H}_2\text{NCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OH}$) and N,N-dimethylaminopropylamine ($(\text{CH}_3)_2\text{NCH}_2\text{CH}_2\text{NH}_2$).

Ott et al differs from the claims in the use of a particular polyglycidyl ether, complete reaction of the polyglycidyl ether to form the same reaction product of N-

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alkylating agents when the N-alkylating agents are capped with 2-hydroxy-3-chloropropyl, or the residual by-product chloride or bromide resulting from N-alkylating agents are capped with 2-hydroxy-3-chloropropyl.

Ott et al (column 6, lines 27 et seq; particularly lines 55 and 62-65) disclose a number of polyglycidyl ether or polyepoxides including but not limited to those derived from epihalohydrins, glycerol, and polyepoxide derived from the epoxidation of olefins.

It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ the polyglycidyl ether or polyepoxides taught in the Ott et al reference as an obvious functional equivalent to the DER 732 or the epoxy resins exemplified.

To the extent the Ott et al reference differs in that the reaction of the polyglycidyl ethers are incomplete, less than 100%, or the compositions contain some residual by-product halogen, the Ott et al reference teaches the use of alternative polyglycidyl ethers and/or polyepoxides derived from epihalohydrins. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ the materials derived from epihalohydrins as an obvious functional equivalent to the polyglycidyl ethers and/or polyepoxides exemplified, which would have resulted in polymer compositions having the same or substantially the same structure. See MPEP 2113.

13. Claims 15-23, 26, and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marten et al, US 5,585,446. Marten et al (abstract; column 3, lines 54 et seq; column 4, lines 23 et seq and column 4, lines 56 et seq; column 7, lines 32 et

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seq; examples; and claims) disclose epoxy resin compositions, which react to form the polymeric reaction product. Said composition comprising JEFFAMINE monoamines (see claims 21 and 22), and aliphatic polyepoxides. Marten et al (column 7, lines 32 et seq) clearly contemplates reactants having tertiary amines and having two amino hydrogens and a tertiary amine, e.g., N-aminoethylpiperazine. Claim 15 employs open language when defining the amine-containing monomers. Said recitation would not exclude further aminoreactive hydrogens. Marten et al (column 4, lines 44 et seq) disclose compounds reading on the N-alkylating agents including glycidyl ethers of alkoxyated lauryl alcohols. Marten et al discloses the polymers broadly employing reactant species reading on applicants' species and therefore reaction products thereof.

Claim 60 is included in this rejection since JEFFAMINE M-1000 reads on claim 60, 1)(b). Marten et al (column 4, lines 23 et seq) disclose polyglycidyl ether compounds reads on components 2) and products resulting from claim 60, 3), which are indistinct in the final product when R8 is 2-hydroxy-3-chloropropyl. The terminal halogens would react and expected to form the same reaction products as the diglycidyl ethers. Said reaction products wherein the free amine nitrogens are reactive to form a 2-hydroxypropyl linkage.

Marten et al differs from the compositions in the exemplified compositions having each of the species in the claimed combinations or the compositions with sufficient specificity.

It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ the individual agents and/or components or

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combinations of said agents and/or components for their disclosed advantageous function taught in the Marten et al reference.

Double Patenting

14. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

15. Claims 1-40 and 42-60 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 and 8-13 of U.S. Patent No. 6,569,983. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed invention substantially overlap each other, the claims are generic and the particular species are disclosed and within the claimed genus. Since the instant claims and patentees' claims are both drafted in product-by-process format and the instant process claims 51-59 are indistinct from the process set forth in the product claims, said process claims have been included herein as an obvious in view of the product claims.

Claims 49 and 50 have been included herein since the effective amounts added substantially overlap and the active method step instantly claimed is charging, which is deemed to read on injecting of the patented claims.

Response to Arguments

16. Applicant's arguments filed June 28, 2005 have been fully considered but they are not persuasive.

17. Applicants' amendments have obviated the rejections over McCoy et al '499. Furthermore, McCoy et al '499 is not deemed to fairly suggest the multiple selection of the polyepoxide and amine functional monomers as now claimed by amendment when considered as a whole.

18. Applicants (page 18, second paragraph) assert marten et al provide no motivation to select an amine having two reactive amino hydrogens and a tertiary amine from among the amine hardeners. This has not been deemed persuasive since Marten et al (column 7, lines 58-62) specifically teaches N-aminoethylpiperazine as a preferred hardener.

19. Applicant's arguments with respect to the remaining claims have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on 9:00 AM to 5:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Daniel S. Metzmaier
Primary Examiner
Art Unit 1712

DSM